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FOOTMAN-MOTHS OF THE GENUS *SETINA* SCHRANK, 1802 (LEPIDOPTERA, ARCTIIDAE: LITHOSIINAE) IN THE RUSSIAN FAR EAST

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Two species, *Setina irrorela* and *S. roscida*, are recorded from the Russian Far East, of them *S. roscida* is recorded for the first time from this region. A generic diagnosis and a key to discussed species based on external characters and genitalia structure are given. The data on general distribution, habitats and the host plants are summarized. Male and female genitalia are illustrated and the maps with known collecting sites are provided.

KEY WORDS: Arctiidae, Lithosiinae, *Setina*, faunistic, Russian Far East.

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Для Дальнего Востока России указываются *Setina irrorela* и *S. roscida*, из них последний впервые указывается для фауны этого региона. Приводится диагноз рода и определительная таблица рассматриваемых видов, основанная на внешних признаках и строении гениталий. Обобщены данные о распространении, местах обитания и кормовых растениях. Приводятся иллюстрации гениталий самцов и самок и карты с указанием находок рассматриваемых видов на Дальнем Востоке России.

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INTRODUCTION

The genus *Setina* Schrank includes six species, of them four are restricted in their distribution by West Palaearctic only (Freina & Witt, 1987) while two others are widely distributed in boreal zone of Eurasia: *S. irrorela* from Ireland and Great Britain up to Kamchatka (Freina & Witt, 1987; Dubatolov et al., 1993; Tshistjakov, 2000) and *S. roscida* was known so far to be spreading from Central Europe up to Transbaikalia and Central Yakutia (Dubatolov et al., 1993). In the course of our study the latter species was found in Primorskyi krai, about 2000 km southward from its known locality in Transbaikalia. Thus, *S. roscida* appears to be new for the Russian Far East and the genus *Setina* actually is represented by two species in discussed fauna.

The aim of this paper is to summarize all known up to date available material and literature data on this genus in the Russian Far East. The paper based mainly on the author's material and on the collection of the Institute of Biology and Soil Science, Russian Academy of Sciences, Vladivostok (both of those are presented in a survey without special indication). In addition some specimens of *Setina irrorela* and *S. roscida* from Europe and from neighboring with Russian Far East regions were examined by author. The literature cited for both species includes only the sources based on the local material. The information for each observed species includes the basic bibliography, habitats in the local conditions and general distribution as well.

Genus *Setina* Schrank, 1802

Setina Schrank, 1802, Fauna Boica, vol. 2: 165, type species: *Phalaena irrorella* Linnaeus, 1758 (included as *irrorea* [Denis et Schiffemüller], 1775, an unjustified emendation of *irrorella* Linnaeus) by subsequent designation by Westwood, Introd. mod. Classif. Insects 2 (Synopsis Genera Br. Insects), 1840: 93.

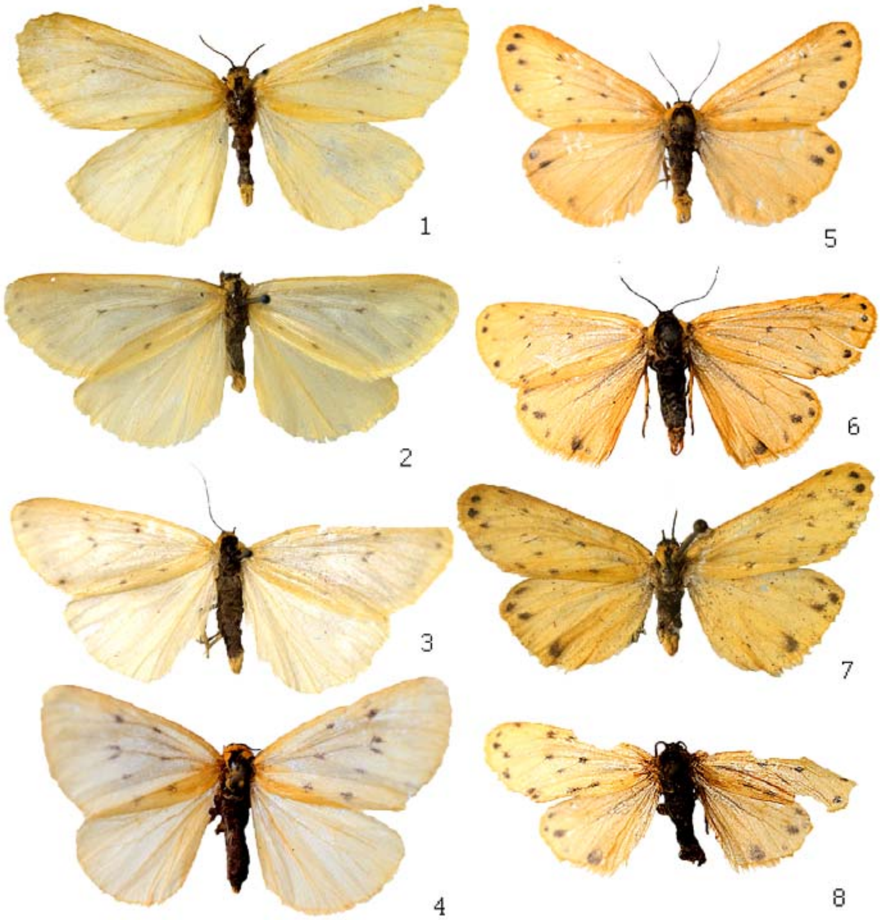
Endrosa Hübner, [1819]1816, Verz. Bekannter Schmett: 167, type species: *Noctua roscida* [Denis et Schiffemüller], 1775, by subsequent designation by Hampson, 1900: 415.

Philea Zetterstedt [1839], Insecta Lapponica: 931, type species: *Phalaena irrorella* Linnaeus, 1758, by subsequent designation by Hampson, 1900: 418.

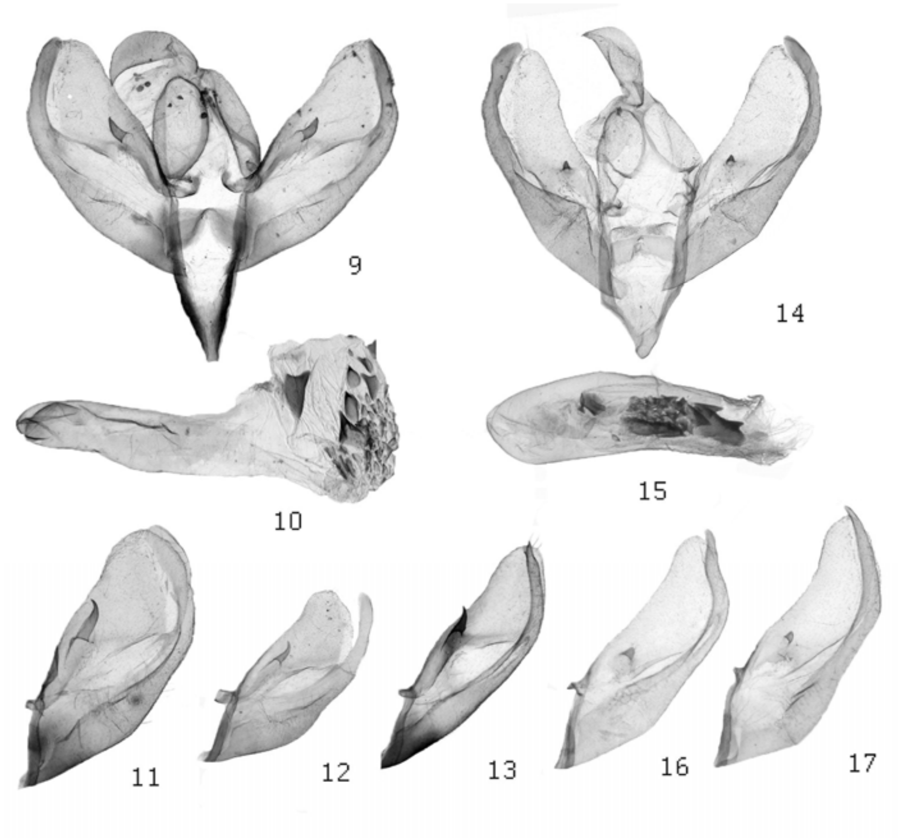
DIAGNOSIS. Moths of moderate size with slender body and rather wide wings of yellow or yellowish color, with contrast pattern of black dots, arranged in transverse rows; externally and by genitalia structure very similar to Palaearctic species of the genus *Stigmatophora* Staudinger, 1881(Tshistjakov & Dubatolov, 1990). Proboscis well developed. Palps short, straight, hardly produce before frons. Antenna filiform, with 2 setae on each segment, covered with cilia on inner surface. Eyes rounded, without hairs. Hind tibia with two pairs of spoors. Forewing with rather oblong *R-Cu* cell; common stem of veins R_{3+5} and M_1 short, just from the angle of *R-Cu* cell; in hind wing common stem of veins *Rs* and M_1 short, less then one third of free M_1 length.

Male genitalia. Uncus short, somewhat swollen on dorsal side, with pointed top; tegumen arciform; valva lobar, bearing well sclerotized harpa in the middle below costa; sacculus swallen in basal half, more or less curved in proximal part; aedeagus of slightly oblique tube; vesica with 4-5 large thorn cornuti and with a group of numerous minute cornuti.

Female genitalia. Papillae anales trapeziform, moderately sclerotized; apophyses posteriores slender, reach to proximal margin of 8th segment; apophyses anteriores nearly of the same length as apophyses posteriores; ostium in membranous sinus; ductus bursae strongly sclerotized, funnelform near ostium, then chinked and falls into corpus bursae in proximal third of its dorsal wall; corpus bursae well sclerotized, swollen on ventral side, covered by numerous minute spines, with membranous bulla on bottom.



Figs. 1-8. Moths of *Setina*. 1–4) *S. irrorella insignata*: 1) male (Never River, Amurskaya oblast'); 2) male (Magadanka River, Magadanskaya oblast'); 3) male (Borovoe, Kamchatka Peninsula); 4) female (Krasnyi Yar, Khabarovskyi krai); 5-8) *S. roscida*: 5) male (Ternei, Primorskyi krai); 6) male (Blagodatnoe Lake, Primorskyi krai); 7) male (Mt. Oblachnaya, Primorskyi krai); 8) female (Blagodatnoe Lake, Primorskyi krai).

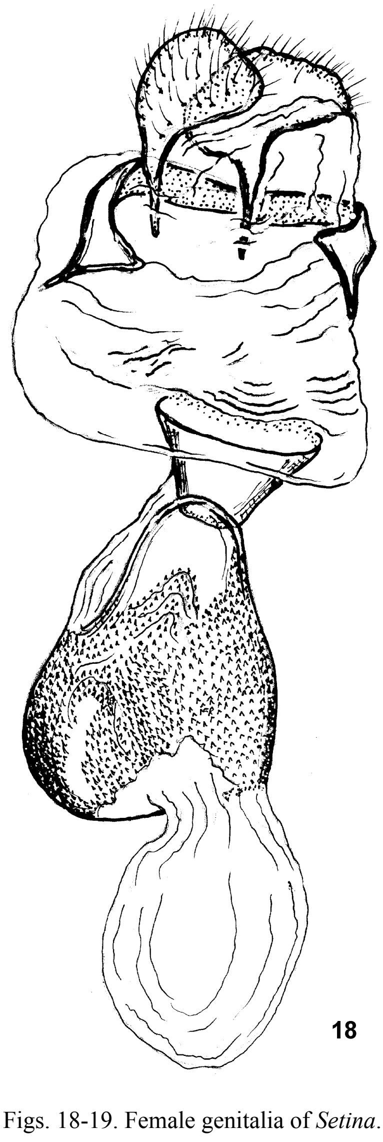


Figs. 9-17. Male genitalia of *Setina*. 9-13) *S. irrorella insignata*: 9) caudal view without aedeagus (Zeiskyi Nature reserve, Amurskaya oblast'); 10) aedeagus (Zeiskyi Nature reserve, Amurskaya oblast'); 11) valva (Dukcha River, Magadanskaya oblast'); 12) valva (Borovoe, Kamchatskaya oblast); 13) valva (Tanhoi, South Transbaikalia); 14-17) *S. roscida*: 14) caudal view without aedeagus (Taiga, Primorskyi krai); 15) aedeagus (Taiga, Primorskyi krai); 16) valva (Tverskaya oblast', European part of Russia); 17) valva (Kaa-Net, Tuva).

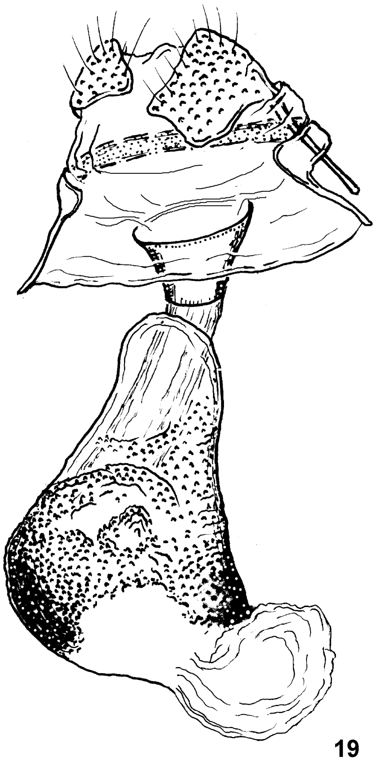
Key to the species

1. Wingspan: 24–28 mm. Forewing relatively narrow, with 3 transverse rows of black dots: near base, in the middle and along outer margin. Hind wing with black spots along outer margin, disposed in irregular row (figs. 5-8). In male genitalia (figs. 14-17) valve with short, faintly visible harpa, abrupted on top. In female genitalia (fig. 19) corpus bursae flattened at bottom; bulla small, less then half of corpus bursae size ………………………………………………………… ***S. roscida***

– Wingspan: 26–32 mm. Forewing relatively wide, with 2 transverse rows of black dots: near base and in the middle; a raw along outer margin lacking. Hind wing without black spots along outer margin (figs. 1-4). In male genitalia (figs. 9-13) valve with long harpa, pointed on top. In female genitalia (fig. 18) corpus bursae rounded at bottom; bulla nearly of the same size, as corpus bursae ………………. ……………………………………………………………. ***S. irrorela insignata***



18



19

Figs. 18-19. Female genitalia of *Setina*. 18) *S. irrorella insignata*; 19) *S. roscida*.

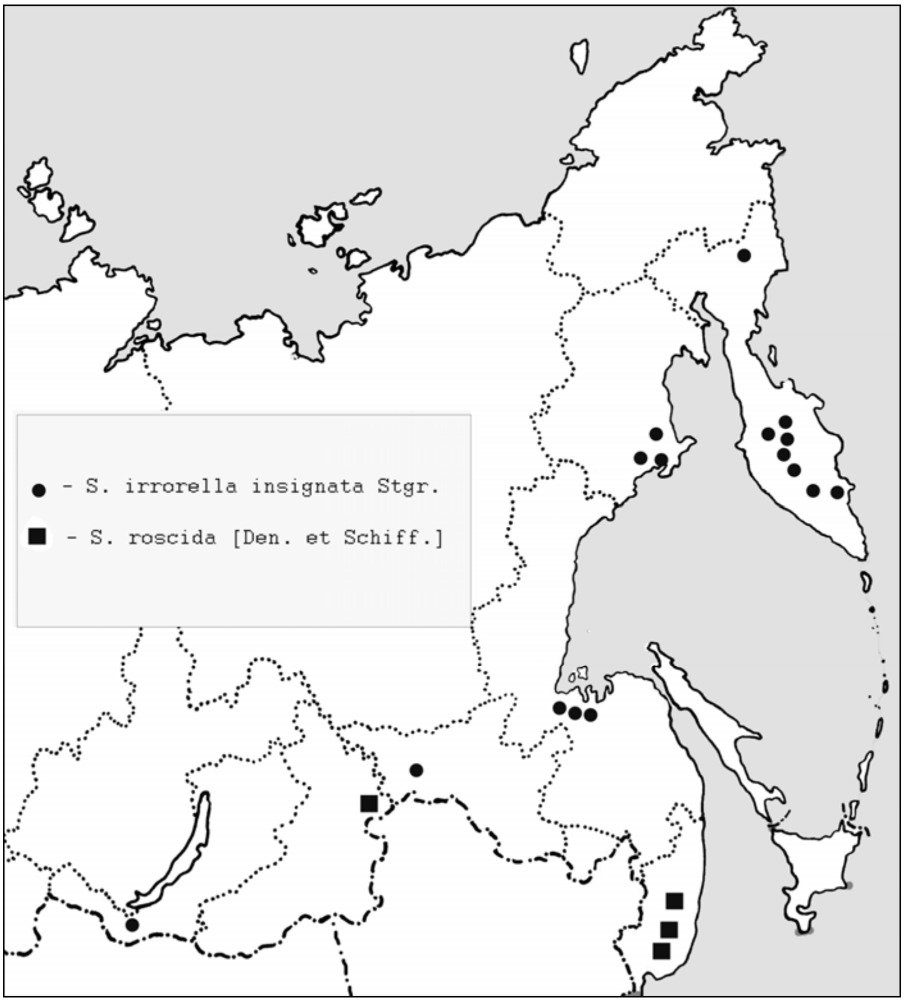


Fig. 20. Distribution of *Setina* species within Russian Far East and neighboring areas.

Setina irrorella insignata **(Staudinger, 1881)**
Figs 1-4, 9-13, 18, 20

Filea irrorella insignata Staudinger, Stett. Zeit., 1881 (42): 399.

Setina irrorella insignata: Dubatolov et al., 1993: 174; Smetanin, 1999: 49; Tshistjakov, 2000: 258.

Filea irrorella lata Christoph, Deutsch. Entomol. Ztschr. Iris, 1893 (6): 88.

Philea irrorella (nec Linnaeus, 1758): Sedyh, 1979: 289 (Kamchatka: Esso, Pogranichnyi, Milkovo, Elisovo).

MATERIAL. Magadanskaya oblast': 1♂, vicinity of Magadan City, Magadanka River, 12.VII 1959 (D.G. Kononov leg.); 1♂, same locality, 24.VII 1961 (D.G. Kononov leg.); 1♂, vicinity of Magadan City, mouth of Dukcha River, 8.VIII 1987 (Yu.A. Tshistjakov leg.); 2 ♂, near Seimchan settlement, 2.VIII 1963 (D.G. Kononov leg.). Kamchatka Peninsula: 1♀, Koryak's plateau, upper stream of Apuka River, 5.VII 1960 (V.A. Nechaev leg.); 1♂, Kamchatka River, near Lazo village, 7.VII 1958 (D.G. Kononov leg.); 1♂, Kamchatka River, near Centralnyi Sovkhoz village, 16.VII 1958, (D.G. Kononov leg.); 4 ♂, Kamchatka River, near Borovoe village, 17.VII 1958, (D.G. Kononov leg.); 1 ♂, Shchapino village, 27.VII 1960 (E. Safronova leg.); 4 ♂, 20 km N of Gannaly village, 30.VII 1997 (Yu.A. Tshistjakov leg.). Amurskaya oblast': 1 ♂, Zeiskyi Nature reserve, 29.VII 1977 (L.G. Morosova leg.); 3♂, middle stream of Never River, 10-11.VIII 1956 (D.G. Kononov leg.). Khabarovskyi krai: 2 ♂, middle stream of Amgun' River, 21.VIII 1957, (A.I. Kurentzov leg.); 2♂, 1♀, 100 km South Polina Osipenko village, 21.VIII 1957 (D.G. Kononov leg.); 2 ♀, near Krasnyi Yar village, 28.VII 1957 (D.G. Kononov leg.); 1 ♀ Chatka, 10.VII 1975 (V.A. Kirpichnikova leg.).

DISTRIBUTION. Mountains of Southern Siberia and Northern Mongolia, North-Eastern and Northern Siberia, Chukotka and Kamchatka (fig. 20).

HABITATS. Boggy places with sparsely spreading larch-woods on the plateaus and along river valleys so the high-mountainous landscapes, where it inhabits a subalpine zone with mountain tundra vegetation.

HOST PLANTS. Lichens.

REMARKS. Differs externally from the nominate subspecies *Setina irrorella irrorella* Linnaeus, 1758 by lacking of the black dots along outer margin of the forewings. The differences between both these subspecies in male genitalia are not so clear and first of all touch to shape of valva (it is more wide in *S. irrorella insignata*). Other characters (such as shape of harpa and shape of sacculus) also vary even within one population. Moreover, shape of harpa in the specimens from South Transbaikalia (fig. 13) more similar to that of *S. alpestris* Zeller, 1865 from Alps (South Tirol), then to any form of *S. irrorella.* Thereby I suppose *S. alpestris* and close to it *S. aurita* (Esper, 1787) with their known subspecies so far treated as the endemics of Alps, actually could be treated as the forms of *S. irrorella* only.

***Setina roscida* ([Denis et Schiffermüller], 1775)**
Figs. 5-8, 14-17, 19, 20

Noctua roscida [Denis et Schiffermüller], 1775, Ankündung syst. Werkes Schmett. Wienergegend: 68.
Setina roscida: Dubatolov et al., 1993: 174.

MATERIAL. Zabaikalskii krai: 1♂, Chasovaya River [tributary of Shilka River], 4.VIII 1976. Primorskyi krai: 1 ♂, Ternei settlement, 5.VII 1962 (V.F.

Volkova leg.); 5♂,1♀, Sikhote-Alinskyi Nature reserve, Blagodatnoe Lake, 18.VII 1979 (V.S. Kononenko leg.); 1 ♂, 12 km westward Dal'negorsk, Taiga settlement, 5.VIII 1971 (Yu.A. Tshistjakov leg.); 2 ♂, "eastern slope of Luonelasa Mt." [Oblachnaya Mt.], 26-27. VII 1931 (A.I. Kurentzov leg.).

DISTRIBUTION. Central and North Europe, mountains of Southern Siberia (Altai), Central Yakutia, Zabaikalskii krai, Primorskyi krai (fig. 20).

HABITATS. Boggy places on the plateaus and in the valleys as well as a subalpine zone with mountain tundra vegetation.

HOST PLANTS. Lichens.

REMARKS. Comparative study of the *Setina roscida* specimens from the different localities (East Europe, Caucasus, Altai, Krasnoyarskyi krai, Zabaikalskii krai and Primorskyi krai) has showed there are no essential differences as well as in appearance so in genitalia structure between populations within rather wide area of this species. A systematic position of *S. roscida kuhlweini* (Hübner, [1823-1824]) occurring in Europe together with typical *S. roscida* is not clear enough and quite probably it could be treated as a color form of the latter only.

REFERENCES

Dubatolov, V.V., Tshistjakov, Yu.A. & Viidalepp, J. 1993. A list of the Lithosiinae of the territory of the former USSR (Lepidoptera, Arctiidae). *Atalanta*, 24(1/2): 165–175.

Freina, J. de & Witt, T. 1987. Familie Arctiidae Leach [1815]. *In*: Freina, J. de & Witt, T. (Eds). *Die Bombyces und Sphinges der Westpalaarktis* (*Insecta*, *Lepidoptera*). *Bd 1*. Muchen, pp. 56–183, Taf. 1 -13.

Christoph, H. 1893. Lepidoptera nova fauna Palaearcticae. *Deutsch. Entomol. Ztschr. Iris*, 6: 86–96.

Sedyh, K.F. 1979. Lepidoptera (Macrolepidoptera) of the Kamchatka fauna and adjacent provinces. Entomologicheskoe Obozrenie, 58(2): 288–298. (In Russian).

Smetanin, A.N. 1999. *A list of the Insects of the Kamchatka (Arthropoda: Insecta)*. Petropavlovsk-Kanchatskyi, 110 p. (In Russian).

Tshistjakov, Yu.A. 2000. An annotated checklist of larger moths (Lepidoptera: Heterocera, except Geometridae and Noctuidae) of the Kamchatka peninsula, with notes on their zoogeography. *Natural History Research, Special Issue*, 7: 253–266.

Tshistjakov, Yu.A. & Dubatolov, V.V., 1990. The footman-moths of the genus *Stigmatophora* Staudinger, 1881 (Lepidoptera, Arctiidae: Lithosiinae) of the fauna of the USSR. *In*: *Novosti systematiki nasekomyh Dal'nego Vostoka*. Vladivostok, pp. 86–96. (In Russian).

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